CLAIMS

What is claimed is:

1. An isolated nucleic acid which binds with high specificity with a portion of the mRNA-coding region of a human *MCT-1* gene.

2. The isolated nucleic acid of claim 1, wherein the mRNA-coding region of said gene has the nucleotide sequence SEQ ID NO: 7.

3. The isolated nucleic acid of claim 2, wherein said portion has a nucleotide sequence selected from the group consisting of at least about 20 consecutive nucleotide residues of SEQ ID NO: 7 and at least about 20 consecutive nucleotide residues of the sequence complementary to SEQ ID NO: 7.

4. The isolated nucleic acid of claim 3, wherein said portion has a nucleotide sequence selected from the group consisting of at least about 25 consecutive nucleotide residues of SEQ ID NO: 7 and at least about 25 consecutive nucleotide residues of the sequence complementary to SEQ ID NO: 7.

5. The isolated nucleic acid of claim 1, wherein said isolated nucleic acid has a sequence which is either at least about 75% homologous with said portion or at least about 75% complementary to said portion.

6. The isolated nucleic acid of claim 5, wherein said isolated nucleic acid has a sequence which is either at least about 95% homologous with said portion or at least about 95% complementary to said portion.

7. The isolated nucleic acid of claim 6, wherein said isolated nucleic acid has a sequence which is either completely homologous with said portion or completely complementary to said portion.

8. The isolated nucleic acid of claim 1, wherein said isolated nucleic acid comprises at least one modified internucleoside linkages.

9. A vector comprising the isolated nucleic acid of claim 1.

10. The vector of claim 9, wherein said isolated nucleic acid is operably linked with a promoter.

11. The vector of claim 10, wherein said portion comprises nucleotide residues 258-800 of SEQ ID NO: 7.

12. A pair of isolated nucleic acids of claim 1, wherein one of said pair is complementary to a first portion of the mRNA-encoding region and the other of said pair is homologous with a second portion of the mRNA-encoding region.

13. An isolated molecular beacon nucleic acid comprising a first portion and a second portion, wherein said first portion binds with high specificity with a region of the mRNA-coding region of a human *MCT-1* gene and wherein said second portion anneals with said first portion to a lesser degree when said first portion is not annealed with said region than when said first portion is annealed with said region,

said first portion having one of a fluorophore-quencher pair associated therewith, and

said second portion having the other of said fluorophore-quencher pair associated therewith, whereby said molecular beacon nucleic acid fluoresces in the presence of said region to a greater degree than in the absence of said region.

14. An isolated polypeptide having an amino acid sequence which comprises at least about ten consecutive amino acid residues of SEQ ID NO: 8.

15. The isolated polypeptide of claim 14, wherein the sequence comprises at least fifteen consecutive amino acid residues of SEQ ID NO: 8.

16. The isolated polypeptide of claim 14, wherein the sequence is SEQ ID NO: 8.

17. The isolated polypeptide of claim 16, wherein said polypeptide is substantially purified.

18. A method of reducing *MCT-1* expression in a cell *in vitro*, said method comprising providing an isolated nucleic acid which binds with high specificity with a portion of the mRNA-coding region of a human *MCT-1* gene to said cell, whereby expression of *MCT-1* in said cell is reduced.

19. Use of an isolated nucleic acid which binds with high specificity with a portion of the mRNA-coding region of a human *MCT-1* gene for making a pharmaceutical composition for reducing *MCT-1* expression in a cell *in vivo*.

20. A method of increasing MCT-1 production in a cell *in vitro*, said method comprising providing an isolated nucleic acid to the cell, said isolated nucleic acid comprising a promoter operably linked with a portion of the mRNA-coding region of an *MCT-1* gene, whereby production of MCT-1 in said cell is increased.

21. The method of claim 20, wherein said portion comprises nucleotide residues 258-800 of SEQ ID NO: 7.

22. Use of isolated nucleic acid comprising a promoter operably linked with a portion of the mRNA-coding region of an *MCT-1* gene for making a pharmaceutical composition for increasing MCT-1 production in a cell *in vivo*.

23. The method of claim 22, wherein said portion comprises nucleotide residues 258-800 of SEQ ID NO: 7.

24. A method of determining whether a test compound is a modulator of *MCT-1* expression, said method comprising

culturing, in the presence of said test compound, a first cell which overexpresses *MCT-1*; and

comparing *MCT-1* expression in said first cell with *MCT-1* expression in a second cell of the same type cultured in the absence of said test compound, whereby a difference between *MCT-1* expression in said first cell and *MCT-1* expression in said second cell is an indication that said test compound is a modulator of *MCT-1* expression.

25. A method of determining whether a gene product is a modulator of *MCT-1* expression, said method comprising

expressing an isolated nucleic acid encoding said gene product in a first cell which overexpresses *MCT-1*; and

comparing *MCT-1* expression in said first cell with *MCT-1* expression in a second cell of the same type, wherein said isolated nucleic acid is not expressed in said second cell, whereby a difference between *MCT-1* expression in said first cell and *MCT-1* expression in said second cell is an indication that said gene product is a modulator of *MCT-1* expression.

26. A method of determining whether a cell is a tumor cell, said method comprising comparing *MCT-1* expression in said cell and *MCT-1* expression in a non-

tumor cell, whereby a difference between *MCT-1* expression in said cell and *MCT-1* expression in said non-tumor cell is an indication that said cell is a tumor cell.

27. The method of claim 26, wherein said method is performed *in vitro* and wherein said cell is obtained from a human.

28. A method of determining whether a cell is a tumor cell, said method comprising comparing *MCT-1* copy number in said cell and *MCT-1* copy number in a non-tumor cell, whereby a difference between *MCT-1* copy number in said cell and *MCT-1* copy number in said non-tumor cell is an indication that said cell is a tumor cell.

29. The method of claim 28, wherein said method is performed *in vitro* and wherein said cell is obtained from a human.

30. A method of conferring a growth advantage on a cell *in vitro*, said method comprising providing an isolated nucleic acid to the cell, said isolated nucleic acid comprising a promoter operably linked to a portion of the mRNA-coding region of an *MCT-1* gene.

31. Use of an isolated nucleic acid comprising a promoter operably linked to a portion of the mRNA-coding region of an *MCT-1* gene for making a pharmaceutical composition for conferring a growth advantage on a cell *in vivo*.